

REMARKS

Claims 1, 3-5, 7-11, 13-18, and 21-26 are pending. Claims 1, 3, 5, 7-9, 11, 13-18, and 21-23 have been amended, claims 2, 6, 12, 19, and 20 have been canceled, and new claim 36 has been added to recite additional features of the embodiments disclosed in the specification.

In the Final Office Action, the Examiner maintained the rejection of claims 1-19 under 35 USC § 103(a) based on a combination of the Cohen-Solal and Suh patent publications, and extended this rejection to the remaining claims. This rejection is traversed for the following reasons.

At the outset, it is noted that on page 2 of the Final Office Action, the Examiner appeared to suggest that Applicants made an admission on page 10 of the previous Amendment. At page 10 of the previous Amendment, Applicants stated:

The Cohen-Solal publication, however, does not teach or suggest allowing a user to determine the shape of the PIP, e.g., in Cohen-Solal the PIP is always displayed as a square or rectangle. See Figures 2A and 2B.

The Examiner took this statement to constitute an admission that Cohen-Solal discloses allowing a user to choose between outputting a PIP in a square shape or a rectangular shape. Applicants submit that the Examiner has misunderstood this statement. In viewing Figures 2A and 2B, it is unclear whether the shape of PIP 210A is a square or rectangle. Accordingly, Applicants indicated on page 10 of the previous Amendment that Cohen-Solal discloses a PIP in the shape of a square or rectangle.

However, Cohen-Solal does not provide its user with a choice of whether to display PIP 210A in a square or rectangle shape. Rather, in all instances, Cohen-Solal displays PIP 210A in the same shape, whether that shape is a square or rectangle.

For the record, Applicants therefore affirm that the Cohen-Solal publication does not teach or suggest allowing a user to determine the shape of a PIP under any reasonable interpretation. Rather, Cohen-Solal only discloses allowing a user to control the position and size of a PIP, not its shape. Thus, Cohen-Solal does not teach or suggest, as recited in claim 1, a microcomputer which controls the first video processor and the second video processor, so that at least one of the main picture data or the sub-picture data is at least partially outputted “in accordance with a shape of the sub-picture determined by a user.” (Emphasis added).

The Suh publication was cited for its disclosure of a processor and microcomputer for controlling video signals. The Suh publication, however, does not teach or suggest the features of claim 1 missing from the Cohen-Solal publication.

In addition to these features, claim 1 has been amended to more definitively recite how the shape of a PIP is determined by a user. Specifically, as amended, claim 1 recites that the microcomputer performs the function of “displaying a sub-picture setting menu in response to a PIP mode selection,” which menu includes a plurality of selectable options. Claim 1 further recites that the user determines the shape of the sub-picture by “performing a sub-picture setting from the displayed menu, wherein the sub-picture shape is defined by pixel information for forming a non-rectangular geometric shape and wherein the pixel information is set by the sub-

picture setting.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

For the foregoing reasons, it is respectfully submitted that claim 1 and its dependent claims are in allowable condition.

Claim 3 recites that “the sub-picture setting menu includes a plurality of selectable sample shapes.” The Cohen-Solal publication does not teach or suggest displaying a menu of selectable shapes in which a PIP may be displayed, and neither does Suh. Accordingly, Applicants submit that claim 3 is allowable, not only by virtue of its dependency from claim 1 but also based on the features separately recited therein.

Claim 4 recites that “the sub-picture setting menu further includes a selectable option for creating and adding new sub-picture sample shapes based on the user’s preference.” These features are not taught or suggested by the cited references, whether taken alone or in combination. Moreover, it is improper to take Official Notice of these features.

Claim 5 recites that the sub-picture setting menu includes a plurality of selectable options for controlling a size and a position of the sub-picture, a number of the sub-picture data and an emphasis ratio of the sub-picture data to the main picture data, and for adding a PIP setting in accordance with selected options. These added features are not taught or suggested by the cited references, whether taken alone or in combination.

Claim 7 recites that the microcomputer controls the first video processor, using the pixel information, so as to output a portion of the main picture data corresponding to an area of the screen excluding the sub-picture shape selected or modified by the user. In base claim 1, the “pixel information” is recited as defining the sub-picture shape for forming a non-rectangular geometric shape. Claim 1 further indicates that the user determines the shape defined by this pixel information. The Cohen-Solal and Sub publications do not teach or suggest such pixel information. It therefore logically follows that the features of claim 7 are not taught or suggested by these publications, whether taken alone or in combination.

Claim 8 recites that the microcomputer controls the second video processor, using the pixel information, so as to selectively output a portion of the sub-picture data corresponding to the sub-picture shape selected or modified by the user. The Cohen-Solal and Sub publications do not teach or suggest this pixel information and therefore do not teach or suggest the features of claim 8 which are based on this pixel information.

Claim 9 recites a multiplexer “for controlling an emphasis ratio of the sub-picture to the main picture in accordance with a control of the microcomputer.” These features are not taught or suggested by the cited references, whether taken alone or in combination.

Claim 11 recites displaying a sub-picture setting menu in response to a PIP mode selection, the menu including a plurality of selectable options; selecting or modifying a sub-picture shape determined by a user performing a sub-picture setting by selecting from the displayed menu; outputting at least one of the main picture data and the sub-picture data partially

depending upon the sub-picture shape selected or modified by the user; and that the sub-picture shape is defined by pixel information for forming a non-rectangular shape and wherein the pixel information is set by the sub-picture setting. These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 16 recites that the outputting step includes “selectively outputting a portion of the main picture data corresponding to an area of the screen excluding the selected or modified sub-picture shape; and outputting the sub-picture data entirely, wherein the main picture data is manipulated so that only the main picture is displayed in an area of the screen excluding the selected for modified sub-picture shape, by controlling an emphasis ratio of the sub-picture to the main picture.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 17 recites that the outputting step includes “selectively outputting a portion of the sub-picture data corresponding to the selected or modified sub-picture shape; and outputting the main picture data entirely, wherein the sub-picture data is manipulated so that only the main picture is displayed in an area of the screen excluding the selected or modified sub-picture shape, by overlapping the main picture with the sub-picture only in the area of the screen excluding the selected for modified sub-picture shape.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 18 recites that the outputting step includes “selectively outputting, based on the pixel information, a portion of the main picture data corresponding to an area of the screen excluding the selected or modified sub-picture shape; and selectively outputting, based on the pixel information, a portion of the sub-picture data corresponding to the selected or modified sub-picture shape.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 21 recites that the non-rectangular geometric shape is one of a heart, a diamond, circle, or a triangle. These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 22 recites that the non-rectangular geometric shape is a new shape created by the user. These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 23 recites that the new shape is different from information indicating a predetermined shape stored in the display device. These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 24 recites that the microcomputer “receives information from the user setting a position of one or more angular points of the new shape” and “outputs at least a portion of the sub-picture data based on the one or more angular points set by the user.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 25 recites that “the microcomputer rotates an orientation of a shape pre-stored in the display device to be used in outputting at least a portion of the sub-picture data.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 26 recites that the microcomputer “receives information from the user modifying information indicative of a pre-stored shape to be used in outputting at least a portion of the sub-picture data, wherein said modification includes rotating an orientation of the pre-stored shape.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 27 recites that the microcomputer “receives information from the user modifying information indicative of a pre-stored shape to be used in outputting at least a portion of the sub-picture data, wherein said information is pixel information.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 28 recites that “the pixel information includes one or more pixel addresses set by the user.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 29 recites “a memory to store information indicative of the new shape created by the user.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 30 recites that “the microcomputer displays information indicative of the new shape created by the user in a menu with information indicative of other shapes.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 31 recites that “the microcomputer receives information from the user indicating a number of sub-picture data to be output in separate screen areas of the display device with the main picture, wherein said number is greater than or equal to two and wherein the sub-picture data output in each of the screen areas corresponds to different video information.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 32 recites that “the microcomputer outputs the sub-picture data in a first screen area having a first shape, wherein the first screen area is included in a second screen area having a second shape different from the first shape, the main picture data at least partially output outside of the second screen area.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 33 recites that “the first shape corresponds to the shape of the sub-picture determined by the user.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 34 recites that “the microcomputer outputs the sub-picture data in a first screen area having a first shape, wherein the first screen area is included in a second screen area having a second shape different from the first shape, the main picture data at least partially output between the first and second screen areas and also outside of the second screen area.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 35 recites that “the first shape corresponds to the shape of the sub-picture determined by the user.” These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

Claim 36 recites a method for performing a picture-in-picture (PIP) function in a display device, the method comprising:

- displaying a sub-picture setting menu in response to a PIP mode selection, the menu including a plurality of selectable options;

- selecting or modifying a sub-picture shape determined by a user performing a sub-picture setting by selecting from the displayed menu, the sub-picture shape defined by pixel information for forming a non-rectangular geometric shape, the pixel information being set by the sub-picture setting;

- converting a first video signal and a second video signal into data representing a main picture and data representing a sub-picture, respectively; and

outputting, based on a predetermined PIP display mode, at least one of the main picture data and the sub-picture data partially depending upon the sub-picture shape selected or modified by the user, wherein the predetermined PIP display mode is one of a first mode, a second mode, or a third mode.,

wherein, in the first mode, outputting at least one of the main picture data or the sub-picture data comprises:

selectively outputting a portion of the main picture data corresponding to an area of the screen excluding the selected or modified sub-picture shape; and

outputting the sub-picture data entirely,

wherein the main picture data is manipulated so that only the main picture is displayed in the area of the screen excluding the selected or modified sub-picture shape, by controlling an emphasis ratio of the sub-picture to the main picture,

wherein, in the second mode, outputting at least one of the main picture data or the sub-picture data comprises:

selectively outputting a portion of the sub-picture data corresponding to the selected or modified sub-picture shape; and

outputting the main picture data entirely,

wherein the sub-picture data is manipulated so that only the main picture data is displayed in an area of the screen excluding the selected or modified sub-picture shape, by

overlapping the main picture with the sub-picture only in the area of the screen excluding the selected or modified sub-picture shape; and

wherein, in the third mode, outputting at least one of the main picture data or the sub-picture data comprises:

selectively outputting, based on the pixel information, a portion of the main picture data corresponding to an area of the screen excluding the selected or modified sub-picture shape; and

selectively outputting, based on the pixel information, a portion of the sub-picture data corresponding to the selected or modified sub-picture shape. These features are not taught or suggested by the Cohen-Solal and Suh publications, whether taken alone or in combination.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and timely allowance of the application are respectfully requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and

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